



1/5TH SCALE ELECTRIC SUPERBIKE



No.6574-F
No.6575-F



This radio control model car is not a toy! Before beginning operation, please read this manual thoroughly.

The contents are subject to change without prior notice due to product improvements and specification changes.

Instruction Manual

WARRANTY

Thunder Tiger Corporation guarantees this model kit to be free from defects in both material and workmanship. The total monetary value under warranty will in no case exceed the cost of the original kit purchased. This warranty does not cover any components damaged by use or modification. Part or parts missing from this kit must be reported within 60 days of purchase. No part or parts will be sent under warranty without proof of purchase. To receive part or parts under warranty, the service center must receive a proof of purchase and/or the defective part or parts. Should you find a defective or missing part, contact the authorized Thunder Tiger Service/Distributor nearest you. Under no circumstances can a dealer or distributor accept return of a kit if assembly has started.

INTRODUCTION

Thank you for purchasing this Thunder Tiger product. This manual contains the steps and instructions required to assemble your car. Please read this manual completely before attempting to start maintenance. Follow the directions in this manual closely to reduce problems during operation. We offer online help on our www.acehobby.com or www.thundertiger.com and forums and our product specialists are ready to take your call if you have any technical questions. Have fun and enjoy the exciting world of R/C.

CAUTION

1. This product is not a toy. It is important to familiarize yourself with the model, its manual, and its construction before assembly or operation.
2. Always keep this instruction manual for your assembling and operating reference.
3. Do not operate model products in rain, on public roads, near airport, or near areas with restricted radio operation.
4. This product, its parts, and its construction tools can be harmful to your health. Always exercise extreme caution when assembling and/or operating this product. Do not touch any part of the model that is rotating.
5. Use an adequate charger for the batteries and follow the instruction correctly.
6. Right after use, do not touch the motor or ESC because they may generate high temperatures!
7. Do not stall the motor. The ESC may fail if power is applied to the motor when car cannot move freely.
8. By the act of assembling or operating this product, the user accepts all resulting liability. If the buyer is not prepared to accept this liability, then he/she return this product in new, unassembled, and unused condition to the place of purchase.

⚠ WARNING ! To avoid a possible fire hazard, ALWAYS unplug the battery after use. Do NOT leave your vehicle unattended with the battery plugged in.

INDEX

- | | |
|---|---|
| INTRODUCTION » 1 | OPERATING RADIO STEERING FUNCTION » 7 |
| CAUTION » 1 | ADJUSTING ELECTRONIC SPEED CONTROLLER (ESC)
(No.6574 Brushed Ver.) » 7 |
| ITEMS REQUIRED FOR OPERATION » 1 | SET UP LOW-POWER CUT OFF FOR LIPO BATTERY » 8 |
| CHARGING THE BATTERY PACK » 2 | ESC DRIVING MODE SET UP » 8 |
| PREPARING THE CHASSIS » 3 | ADJUSTING ELECTRONIC SPEED CONTROLLER (ESC)
(No.6575 Brushless Ver.) » 8 |
| INSTALLING THE SIDE GUARD WIRE » 3 | BEFORE OPERATING » 9 |
| BATTERY INSTALLATION » 3 | OPERATION TIPS » 9 |
| THE ACE RC COUGAR PS3 2.4GHz RADIO SYSTEM » 3 | TROUBLESHOOTING » 9 |
| BINDING PROCESS » 4 | |
| FAIL SAFE(F/S) FUNCTION SETTING » 5 | |
| RADIO OPERATION » 6 | |

ITEMS REQUIRED FOR OPERATION

RTR CONTENTS



ACE RC Cougar PS3
3-Channel Digital 2.4G Pistol Radio System



ACE RC S1903 Standard Servo

NO.6574 Brushed Ver.



ACE RC VELOCIR RS ESC



Super Performance 17t
540 Motor

NO.6575 Brushless Ver.



RIPPER
IBL36/39-540C



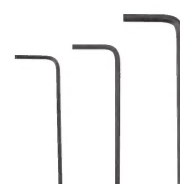
ACE R/C BLC-40C
speed control



Bike Stand
(unassembled)



4-Way Wrench



Hex Wrench Set, 1.5mm / 2.0mm /
2.5mm

EQUIPMENT NEEDED

(Not included in the kit)



AA Alkaline dry batteries
8 pieces for transmitter



7.2V Compatible Power Charger
(AC/DC Charger)
NO. AT6116 US PLUG
NO. AT6117 EU PLUG
NO. AT6118 UK PLUG

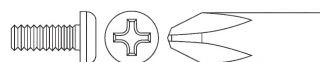


ACE POWER Ni-MH BATTERY PACK
NO. 2937 Ni-MH BATTERY, 7.2V/2.4AH
NO. 2941 Ni-MH BATTERY, 7.2V/3.6AH



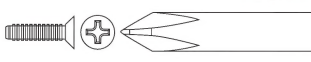
BLC ESC Setting Card

TOOLS NEEDED



M3

Philips Screwdriver



M2

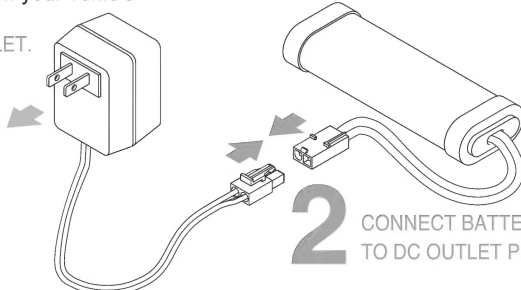
1 CHARGING THE BATTERY PACK

(Battery and Charger are not included in the kit.)

Before charging the battery, read the instructions for the battery and battery charger.

1. When charging the battery, first plug the adapter connector into the charger. Connect the adapter connector to the battery pack. Confirm the link between charger, adapter connector and battery pack that are properly connected in order. You can connect the charger to the AC wall outlet now.
2. Once the charger is connected, a red LED will light up to indicate that the charging has begun. The LED will light up green to indicate that charging is completed.
3. When finished charging, first disconnected the charger from the AC wall outlet. Disconnect the battery pack from the charger. Install the battery pack on your vehicle.

1 PLUG INTO AC OUTLET.



3 AFTER CHARGE TIME EXPIRES, DISCONNECT BATTERY PLUG FROM CHARGER PLUG.

2 CONNECT BATTERY PLUG TO DC OUTLET PLUG FROM CHARGER.

LiPo BATTERIES

Lithium Polymer (LiPo) batteries are becoming popular for use in R/C models due to their compact size, high energy density, and high-current output. However, these types of batteries require special care and handling procedures for long life and safe operation.

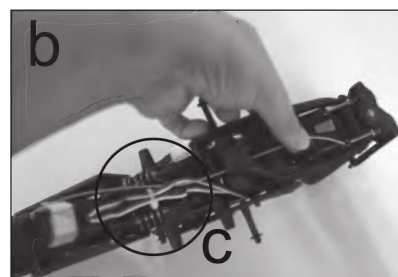
⚠ Warning ! Lithium Polymer (LiPo) batteries are intended only for advanced users that are educated on the risks associated with LiPo battery use. THUNDER TIGER/ACE RC does not recommend that anyone under the age of 16 use or handle LiPo battery packs without the supervision of a knowledgeable and responsible adult.

⚠ Important ! Do not use NiCd/NiMH battery chargers for LiPo batteries. If you do not use a special charger for LiPo batteries, they will be damaged.

The ACE RC VELOCI RS electronic speed control is able to use LiPo batteries with nominal voltage not to exceed 7.4 volts (2S packs recommended). Exceeding these voltages may result in damage to your brushless system. LiPo batteries have a minimum safe discharge voltage threshold that should either not be exceeded. The ACE RC VELOCI RS electronic speed control is equipped with built-in Low-voltage detection that cuts the power automatically when batteries have reached their minimum voltage (discharge) threshold. Refer to the low power table in the ESC instruction manual (Learn how to set up the low voltage cut off function on STEP10). It is the driver's responsibility to stop immediately to prevent the battery pack from being discharged below its safe minimum threshold. It is critical for you, the user, to follow all other instructions supplied by the battery manufacturer and the charger manufacturer for proper charging, use, and storage of LiPo batteries. Make sure you understand how to use your LiPo batteries. Be aware that THUNDER TIGER/ACE RC shall not be liable for any special, indirect, incidental, or consequential damages arising out of the installation and/or use of LiPo batteries in THUNDER TIGER models.

⚠ Learn how to set up the low voltage cut off function on STEP10

2 PREPARING THE CHASSIS



- Remove the body work from the chassis. (NOTE: In order to remove the body work, you must remove the side guard wires from both sides. See STEP 3)
- Route the antenna up the chassis plate from the receiver on the back of the chassis.
- Straighten and thread the antenna through the two front shocks and then secure with the servo leads. (NOTE: Do not cut or shorten antenna wire !)

3 INSTALLING THE SIDE GUARD WIRE



- Use a hexagon driver to loosen the mount screws on the side of the body frames.
- Install the supplied side guard wire onto the mount.

4 BATTERY INSTALLATION



- Install 8 AA-size alkaline batteries into transmitter.
- Secure the power pack (stick type battery pack shown in the picture) into the battery tray with supplied rubber band and connect the battery to the ESC.

⚠ Caution: Check all the wirings and connections before you connect the speed control to a drive battery. Incorrect polarity will damage your speed control.

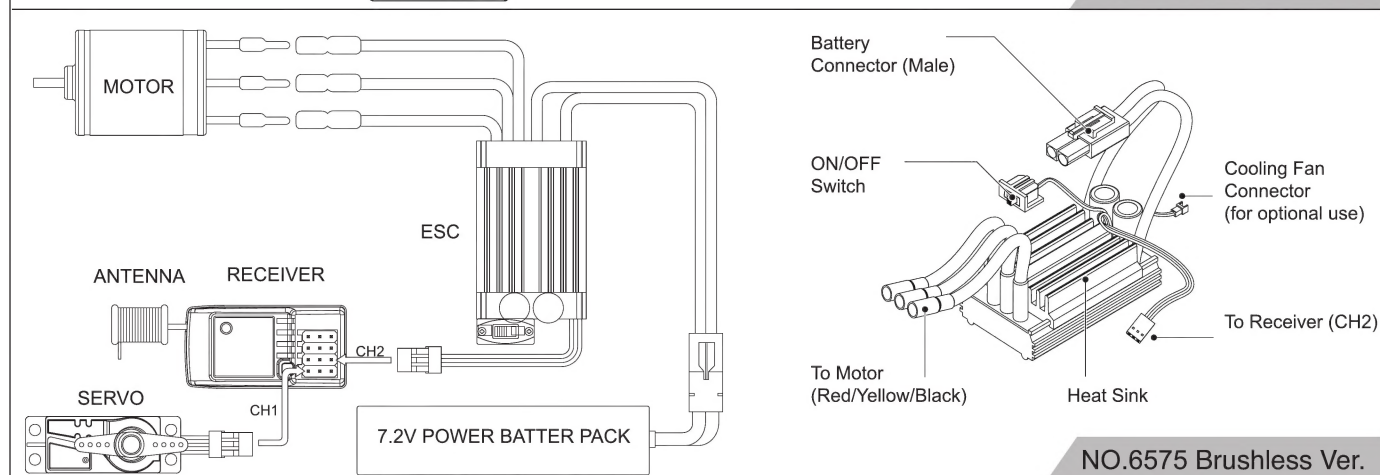
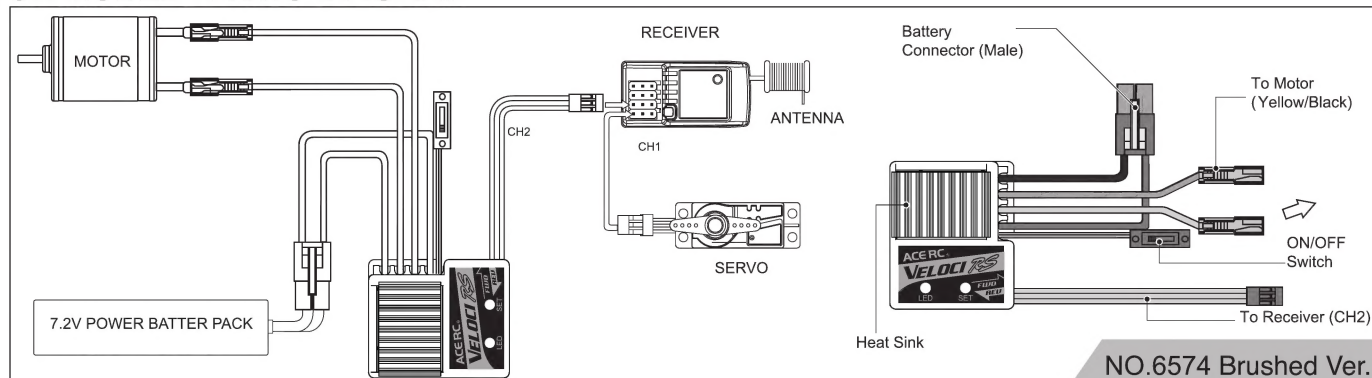
5 The ACE RC Cougar PS3 2.4GHz Radio System



- | | |
|---|--------------------------------|
| 1 Transmitter Antenna | 9 External Charging Jack |
| 2 Battery Level Indicator | 10 2.4GHz binding SW |
| 3 HI/LO Throttle ATV (Adjustable Travel Volume) | 11 Steering Wheel |
| 4 Servo reversing switches | 12 Power Switch |
| 5 Steering Trim | 13 Throttle Trigger |
| 6 Throttle Trim | 14 Steering Tension Adjustment |
| 7 Steering D/R (Dual Rates) | 15 Battery Cover |
| 8 AUX Ch Button | |

5.1 ACE RC Cougar PS3 2.4GHz

5.2 MODEL WIRING DIAGRAM



TRANSMITTER CONTROLS

1. **Transmitter Antenna:** Straighten up the antenna before operating the model.
2. **Battery Level Indicator:** Three LEDs indicate the battery voltage level. If the Red LED flashes, please replace the batteries.
3. **HI/LO Throttle ATV (Adjustable Travel Volume):** Provides the function to let you independently preset the maximum travel of the throttle servo either side (high / low) of neutral.
4. **Servo reversing switches:** To reverse the servo's rotation direction at the flip of the switch. The reversing switches are recessed into the transmitter to prevent accidental operation.
5. **Steering Trim:** Adjusts the steering in small increments or decrements to run the model straight.
6. **Throttle Trim:** Adjusts the throttle in small increments or decrements to shift the neutral position.
7. **Steering D/R (Dual Rates):** Push this lever left or right to adjust the amount of the steering dual rate. Right to increase dual rate amount and left to decrease the amount.
8. **AUX Ch Button:** Provides an extra function for the control of the model.
9. **External Charging Jack:** For rechargeable NiCd/NiHM battery pack on the transmitter only.
10. **2.4GHz binding SW:** The Binding SW button is located on the back of the 2.4GHz transmitter. For additional details, please refer to the "Binding" setting procedure (Page 8).
11. **Steering Wheel:** Controls the steering of the model.
12. **Power Switch:** Sliding to turn the transmitter on or off.
13. **Throttle Trigger:** pulled or pushed to control the movement of the model.
14. **Steering Tension Adjustment:** Use a Phillip type screwdriver to tighten or loosen the tension of the steering wheel.
15. **Battery Cover:** Slide cover to install or remove batteries.



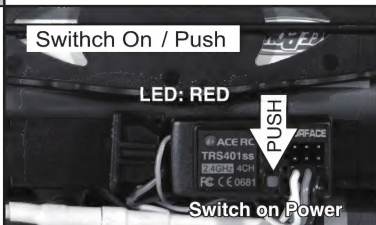
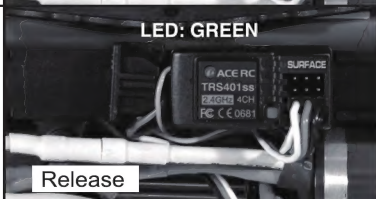
6 BINDING PROCESS

A binding feature is included in the ACE RC Cougar 2.4GHz spread spectrum system to ensure the transmitter and receiver bind properly and prevent interference from other controllers.

To manually bind Tx/Rx, please proceed as per the following steps:

- a. Press and hold the "Binding SW" button on the back side of the transmitter while turning on the transmitter.
- b. Release the "Binding SW" button after the green LED flashes indicating the transmitter is binding.
- c. Press and hold the bind button on the receiver while turning on the receiver. Binding process will then start automatically. The LED will turn green/reed flash on the receiver.
- d. Release the "Binding SW" button. Successful binding is confirmed by the binding LED changing from a quick blinking and then remain solid on the transmitter. The LED will turn green on the receiver. Once binding is complete, the system will automatically connect.

Note ! Binding process may take 3~10 seconds to execute. If binding fails, the LED on the receiver will turn red. Please turn off the power and repeat the steps from a) ~d).

Step	TX Action	RX Action	LED
a		No Action	—
b		No Action	TX LED : GREEN FLASH
c	No Action		RX LED : GREEN/RED FLASH
d	No Action		TX LED : GREEN FLASH-->GREEN SOLID RX LED : RED SOLID-->GREEN SOLID

7 FAIL SAFE(F/S) FUNCTION SETTING

ACE RC COUGAR 2.4GHz R/C system features a built-in Failsafe function to automatically set a servo command if the receiver loses the signal from transmitter due to interference. For safety, we strongly recommend to active the FAILSAFE function on your Cougar R/C system.

Setting up the Failsafe (F/S) Function:

- After binding the transmitter and receiver, you can continually set up the F/S function. Turn on the transmitter power and then receiver power.
- Press and hold the "Binding SW" button on the receiver for 10 seconds. The LED will start flashing GREEN on the receiver.

⚠ CAUTION ! Do not release the "Binding SW" button on the receiver until STEP C is completed.

- Move and hold the throttle trigger to the position you want the control to be in if a failsafe condition should occur. First, keep steering wheel at neutral position (steering servo at neutral position). To set up F/S function with the throttle servo position at "Brake", first push the trigger to the brake position and hold. To set up F/S function with servo position at "Neutral", keep the trigger at neutral position.


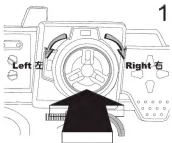
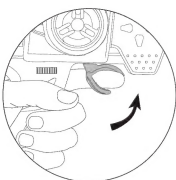



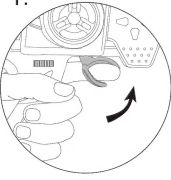

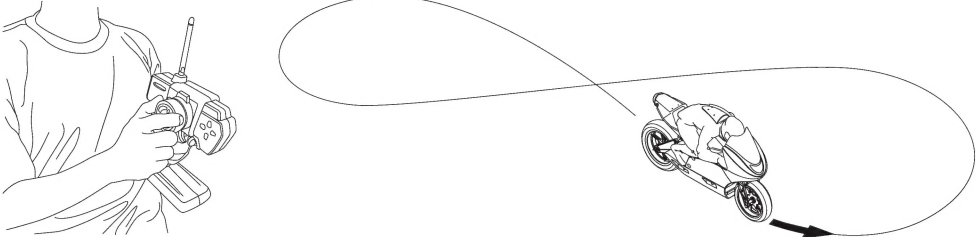
⚠ NOTE ! Always set the throttle trigger to neutral or full brake position and steering servo to neutral position in case of any unexpected control error !

Factory pre-settings for RC car F/S function are :

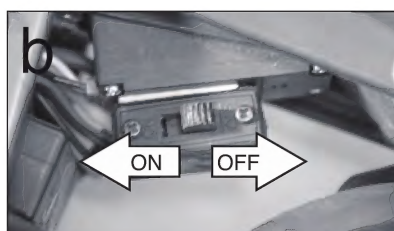
- Electric Car - Steering servo at neutral, throttle at neutral.
- Nitro Car - Steering servo at neutral, throttle at iddle and car brakes.

- After the Step C, release the "Binding SW" button on the receiver first and then the throttle trigger. The LED turns to solid "RED" and then back to solid "GREEN" indicating the F/S function has now been activated.
- Test by turning off your transmitter and watching the servo failsafe position activate.
F/S at "Neutral" : To check the fail safe is working properly, by moving the throttle trigger to the full forward (full brake), hold this position and then turn off the transmitter. The F/S function should move the throttle servo to "Neutral" position and the steering servo to "Neutral" position.
F/S at "Brake" : To check the fail safe is working properly, by keeping the throttle trigger at neutral and then turn off the transmitter. The F/S function should move the throttle servo to "Brake" position and the steering servo to "Neutral" position.
- If the F/S function fails or need to change the F/S hold position, repeat the steps a) ~e). After the F/S is completed, you can start normal operation.

⚠ CAUTION ! ALWAYS reset FAILSAFE function after binding your transmitter & receiver.

Step	TX Action	RX Action	LED
a	Binding Complete	Binding Complete	TX LED : GREEN SOLID RX LED : GREEN SOLID
b	No Action	 <p>Push for 10 seconds</p>	RX LED : GREEN FLASH
c	1. Steering: Neutral 2. Keep brake or trigger at neutral   or 	No Action	Pre-settings for F/S function: ■ EP Car : Steering at Neutral / ESC at Neutral ■ GP Car : Steering at Neutral / Carb. at Idle and car barks
d	Release later 	 <p>Release first</p>	RX LED: RED SOLID-2s->GREEN SOLID
e	1. Keep brake 2. Switch Off  	No Action	F/S function activates
f	OK! 		

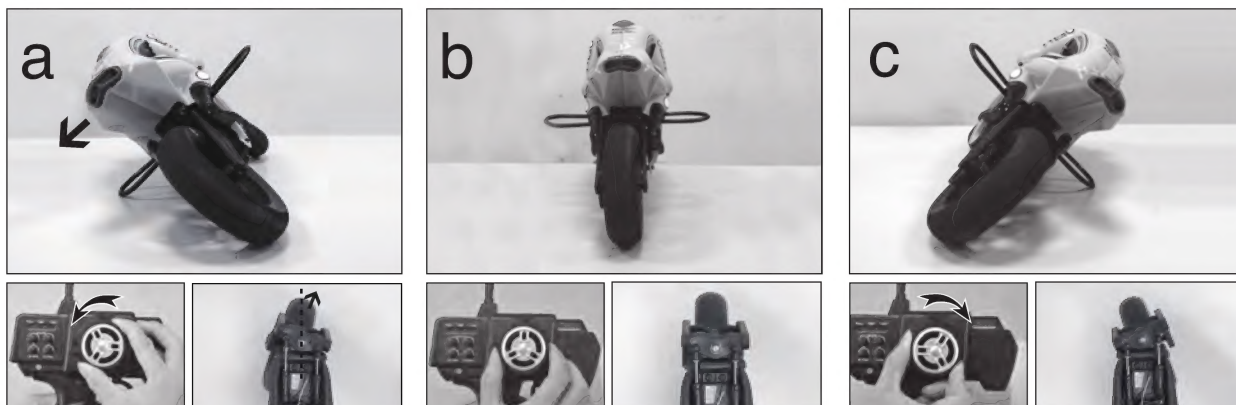
8 RADIO OPERATION



- When turning your system on, ALWAYS turn on the transmitter FIRST.
- Then, turn on the receiver. When turning off, ALWAYS turn the receiver off FIRST, then the transmitter off.
- To reverse the functions of servos, use the small, white servo reverse switches located on the back of the pistol transmitter. To trim the servos on pistol transmitter, use the trim switches on side of the steering wheel (the ST. trims steering, and the TH trims throttle/brake).

⚠ Caution ! Do not run the transmitter's battery flat or you will lose control of the car. For additional details, please refer to the transmitter instruction manual.

9 OPERATING RADIO STEERING FUNCTION

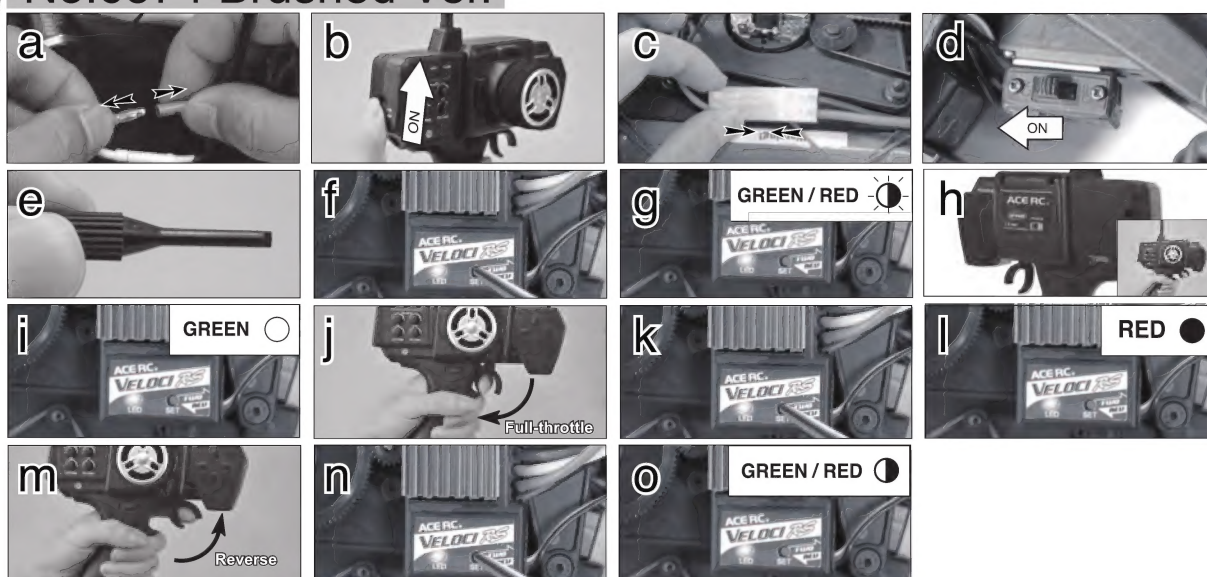


How to steer a motorcycle?

To properly steer a motorbike or turn a motorbike around a bend, counter-steering is the first skill you have to learn about. **Counter-steering means turning the handle bars in the opposite direction of the turn in the bend.** For example: in a right hand bend, turn the handle bar to the left and in a left hand bend, turn the handle bar to the right. Counter-steering causes the bike to turn. Perform the following procedure first:

- Flip the steering servo reverse switch. With the radio transmitter and receiver on, turn the steering wheel to the right. The front tire/wheel should turn left oppositely. The body leans towards the right side, the chassis follows, leaning to the same side. If not, flip the steering servo reverse switch again.
- Once the turn is started, return the steering wheel to neutral. The front tire/wheel should point straight forward.
- Turn the steering wheel to the left. The front tire/wheel should turn right oppositely.

10 ADJUSTING ELECTRIC SPEED CONTROLLER (ESC) No.6574 Brushed Ver.



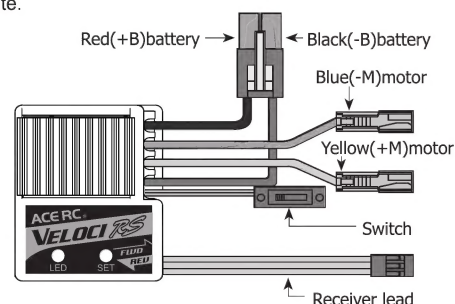
(Picture shows the Ace R/C electric speed control pre-installing on KT8 RACING KART KIT version). Before operating your model, you have to set to either NEUTRAL, HIGH SPEED and BRAKE position of the electric speed control prior running the motor.

- Make sure the motor is disconnected or ensure some other way that the wheels are free to rotate.
- Turn the transmitter on.
- Connect your battery pack.
- Turn the power (ESC) switch on.
- Find the supplied tuning wand in the package or a small screwdriver.
- Hold the set-up button pressed in for at least 3 seconds using the plastic tuning wand supplied.
- The set-up LED now flashes RED/GREEN to indicate that the ESC is in the set-up mode.
- Leave the throttle trigger at the neutral position and the throttle trim knob/lever in the middle
- Press the set-up button, the neutral setting is now stored, and the set-up LED lightens GREEN.
- Move the transmitter trigger to full-throttle.
- Press the set-up button with the trigger still in this position.
- The full-throttle setting is now stored, and the set-up LED lightens RED.
- Move the transmitter trigger to full brake.
- Press the set-up button with the trigger still in this position.
- The brake setting is now stored, and the set-up LED flashes 3 times simultaneously and then goes RED/GREEN light still.

CONGRATULATIONS!

Your electric speed control is now completely set-up. Reattach the motor cord, you are ready to run.

- Remember this! The transmitter is always the **FIRST TO BE TURNED ON** and **THE LAST TURNED OFF**.
- If you make a mistake during the set-up procedure, don't worry: disconnect the battery for about 10 seconds and start again from the first step.
- Refer to the instruction manual for more information on setting the electric speed control.



11 SET UP LOW-POWER CUT OFF FOR LIPO BATTERY

The Veloci RS can be programmed to activate the LiPo Low Voltage Cutoff function when using LiPo batteries.

- Set Up Low Voltage Cutoff – When the ESC is on, press the SET button twice. The LED will flash red 5 times to indicate that the ESC is in LiPo mode.
- To return to NiMH mode, press the SET button 2 times and the LED will flash green 5 times to indicate that the ESC is in NiMH mode. (Factory Default: NiMH mode)

SET UP LOW VOLTAGE CUTOFF



RED

Press SET button twice,
LED flash RED 5 times.

RETURN TO NIMH MODE



GREEN

Press SET button twice,
LED flash GREEN 5 times.

12 ESC DRIVING MODE SET UP

The ESC has two driving modes to choose from. The factory set up is Mode 1 for driving a motorcycle.

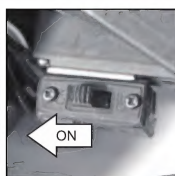
Mode 1- Forward / Brake

Mode 2- Forward / Brake / Reverse

If your ESC is switched to "Mode 2", follow the procedure to disable the "Reverse" function.

- With the ESC connected to the battery.
- Press and hold the set button and switch the ESC on.
- Reverse will now be disabled.

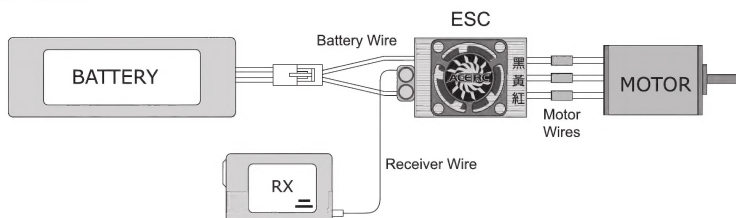
⚠ Note: Do not use Mode 2 for driving your motorcycle.



13 ADJUSTING ELECTRIC SPEED CONTROLLER (ESC) No.6575 Brushless Ver.

Calibrating your ESC and transmitter.

- Install the ESC according to the diagram shown above. Switch on the transmitter first, and then switch on the ESC power.
- Once the ESC is switched on, it will emit a series sound indicating the ESC is actuating. Adjust the throttle trim to get the best neutral position. When neutral is set, another confirmation sound is emitted. If it fails to set up neutral, the confirmation sound will not be heard. In such a case, re-do & re-check the system again starting from Step1 of these instructions. This ESC is applicable to transmitters with either 50/50 or 70/30 throttle/brake movement range.
- Confirm that the throttle forward direction coincides with the ESC forward direction. Lift the car off its wheels. Move the throttle forward and watch the wheel's rotation direction, then move the throttle backwards and see if the system brakes.
- If the wheels' movement coincides with the throttle input then the setting is correct. If the movement is opposite then switch off the ESC, change the setting on the transmitter's throttle reversing switch, and go back to Step 2.
- Motor rotation direction - Slowly apply throttle to check if the motor is rotating in the correct direction. To reverse the direction of the motor, switch any two of the motor wires. Note: Do not reverse the battery wire connections! Reversing the battery polarity will permanently damage the ESC.
- For the first trial run, start with a smaller gear motor for 2~3 minutes then monitor the temperatures of both the ESC & motor. If both temperatures are similar to each other, they are at good match. The gear ratio can then be properly adjusted to the desired optimum ratio depending on the type of car and track. However, it is very important to always keep both temperatures under 95 °C, when selecting a gear ratio. A higher gear ratio (larger pinion or smaller spur gear) will increase the system temperature. Running the system at increased temperatures will cause demagnetization of the motor, resulting in a dramatic drop of motor efficiency.
- It is ok to replace a higher gear ratio or a higher KV motor if the temperature is kept under 80 °C but it should be done in accordance to the instructions in Step 6. Start from a lower ratio then incrementally adjust higher. Battery selection is also an important consideration. Changing to a higher voltage battery will require a lower KV motor and/or a lower gear ratio, unless the original motor has a low enough KV rating to begin with. The ESC will be burn out if the motor and gear ratio does not match the input voltage properly. See the example below showing how battery voltage affects power output.



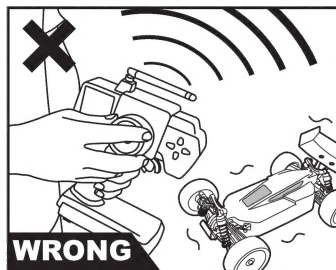
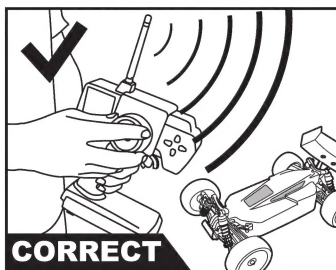
Input 7.2V, internal resistance 0.18Ω --- 40A
(V/R=I 7.2/0.18=40A)

Input 11.1V, internal resistance 0.18Ω --- 61.6A
(V/R=I 11.1/0.18=61.6A)

14 BEFORE OPERATING

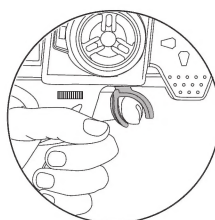
For best operating range, always ensure the largest section of your transmitter antenna faces the model.

⚠ Warning ! Operating range may be significantly reduced with the transmitter antenna pointing directly at the model !

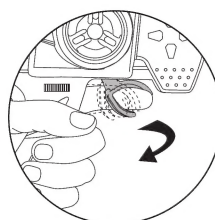


15 OPERATION TIPS

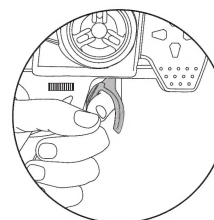
- Hold the transmitter with one hand, finger on throttle,
- With the other hand lightly hold the bike upright. And then give it a throttle while you push the bike a little. The bike goes away in a straight line. Then reach for the steering control and the fun begins!
- When cornering, slow down the speed to make the tight turn easier.
- If the bike falls due to loss of balance, the side guard wire will support and prevent the body from scraping.
- To resume the bike's run, give it a little more throttle throw and help the bike back to balanced running (note: Technical maneuver, do not give too much throttle to avoid spinning.)



Stop (Neutral)



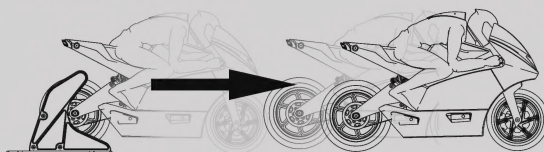
Brake



Acceleration

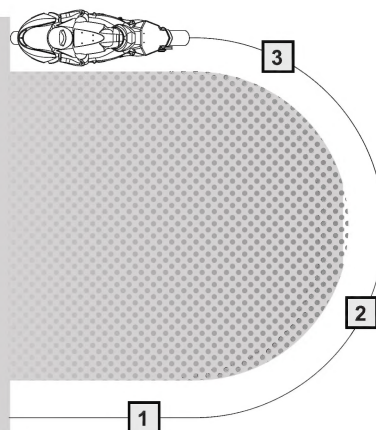
START-UP FROM THE STAND

You can also start the bike with the supplied stand, Position the bike as shown and start to accelerate.



CORNERING TIPS

- Before entering into the corner, cut off the motor power and keep the bike going with the momentum as smoothly steer the bike little by little.
- While keep steering, accelerate the bike little by little according to the degree of banking and turning radius.
- In the end of the cornering, steer the bike once toward the opposite side.



TROUBLESHOOTING

If you have trouble starting or keeping your bike running, here's a quick checklist of what to look for first.

Description	Cause	Solution
Car dies or slows	Speed control over heats	Let it cool and try later
Car is glitching	Car has a problem on power	Check for loose wires, dead radio batteries.
Motor overheats	Gear mesh is too tight	Let motor cool and check recommended gearing for motor type. Reset gear mesh
No power	Battery is discharged	Charge battery
	Battery not plugged in	Plug battery in
No throttle	Motor not plugged in	Plug motor in - No.6574 Plug motor in - No.6575
	Motor failure	Replace motor
	Motor keeps running	Check if the throttle trim is in neutral position.
No steering	Servo not plugged in	Plug servo into ESC unit
	Locked up steering linkage	Free up steering linkage
	Servo failure	Replace servo
Reversing	Goes backwards when you pull the trigger or goes right when turning the wheel left	Check steering reversing switches on transmitter Disable ESC reversing function